

EUROPEAN POLICYBRIEF



ECCCH – NO CULTURAL HERITAGE CLOUD WITHOUT AUDIOVISUAL MEDIA

This second out of two Policy Briefs of the VHH Horizon 2020 Innovation Action is entirely dedicated to including the domain-specific needs of film and other audiovisual media in the system design and the governance model of the envisioned European Collaborative Cultural Heritage Cloud (ECCCH) right from its start.

2023-06-22

INTRODUCTION

Under the label **ECCCH** (“**European Collaborative Cloud for Cultural Heritage**”), the European Commission launched a major funding initiative for the creation of a shared data space for cultural heritage.

The main scope of ECCCH is to “provide cutting-edge tools for digitising artefacts, studying artworks, and documenting data, all of which will improve preservation, conservation and restoration procedures” (Commission Press Release, July 5, 2022) [1]. ECCCH is supposed to develop standards, tools, and services in a digital working space that allow for a large-scale cooperation between curators, archivists, and conservators.

Envisaging an overall budget of EUR 110 million until 2025, the first call issued on January 10, 2023, within the Horizon Europe programme aims at funding a total of three projects with EUR 25 million for one [2] and EUR 5 million each for the other two [3]. While the two smaller projects are to focus on 3D and enhanced 2D technologies, the larger project is expected to create the architecture—a platform—and governance of the overall Cloud within 5 years after its presumed start in 2024.

The ECCCH call is based on an expert report (“Ex – ante impact assessment”) [4] whose highly ambitious vision is fully shared and embraced by the VHH project.

However, we know from previous experiences that the European Commission in its digitization initiatives tends to forget about the specific needs and challenges of audiovisual cultural heritage only to discover later that a crucial part of our shared cultural heritage has been left out and cannot be fully integrated because system designs and core software architectures do not meet the specific requirements of audiovisual media (e.g., from Europeana to its commendable, yet

underfunded and thus technically limited domain aggregator for film heritage, European Film Gateway (EFG), and beyond).

It happened again. The European Commission forgot about audiovisual media.

In the current call and in the initial Expert Report, there is no sign that audiovisual cultural heritage and its domain-specific needs have even been considered.

That's why this second and final policy brief of the VHH project is exclusively dedicated to the importance of audiovisual cultural heritage, the needs, pains, and gains of Film Heritage Institutions (FHIs), the shortcomings of existing digital infrastructures, and recommendations and requests regarding the system design, the governance structure, and the scope of ECCCH which must not turn into another missed opportunity and lost future of European audiovisual cultural heritage.

EVIDENCE AND ANALYSIS

The VHH project's policy recommendations in our first as well as in our second Policy Brief are informed by our findings on advanced digitization and digital curation of difficult cultural heritage as well as technologically challenging media objects such as analog films and their importance for cultural memory. To quote from our first Policy Brief:

“Our understanding of history particularly draws on our shared visual cultural memory. Through their immersive potential, films and other moving images do have a particularly high impact on the formation and circulation of such visual cultural memory. To a certain degree, media images have come to augment and sometimes even replace personal experiences.” [5]

While focused on very specific—and in the case of VHH also highly sensitive—cultural heritage objects, “projects such as VHH may be regarded as pilots and test cases for large-scale attempts to make cultural heritage digitally accessible”. In our first Policy Brief, we therefore already stressed the **need for creating a large-scale digital infrastructure**. What has been true for memorials, is also true for libraries, museums, and archives transforming from analog into hybrid institutions, audiovisual archives in particular: “Instead of each institution creating its own digital infrastructure, hybrid memorials and other hybrid institutions should be able to build on existing digital infrastructures and to customize available digital contents to their own needs.”

I. Needs, pains, and gains: Film Heritage Institutions (FHIs)

While the European Commission's Recovery and Resilience Facility as the key instrument of the *NextGenerationEU* initiative will provide funds as well as incentives to member states for the digitization of cultural heritage objects including film and audiovisual materials, FHIs face the long-haul challenge of appraising, analyzing, databasing and preserving these assets as well as sharing them for re-use and enrichment with professional communities and the public.

This includes significant challenges relating to the following fields:

- Digital Curation of cultural heritage materials, in particular for time-based content
- Cloud-based infrastructure for storing and sharing cultural heritage materials
- Common and consistently applied metadata schemas compatible with European standards and aggregation models and capable of encompassing both audiovisual and non-audiovisual objects as well as their contents
- Data security, IPR management and sharing of IPR-protected content
- Computer-based, human centred analysis of “culture big data” (“Ethical AI”)

- Use of open-source software

We are of the strong view that the Horizon Europe research and innovation programme (2021–2027) and its “Creativity, Cultural Heritage and Inclusion” cluster offer the opportunity to address these pressing needs & pains.

Gains that will be made addressing these challenges include:

- Establishing a common framework and infrastructure for storing, enriching, and sharing (audiovisual) cultural materials
- Increasing the number of audiovisual works available for study and re-use
- Dramatically increasing the quality of the data available, thus making more works discoverable and useful to professional communities and the public
- Moving beyond the aggregation of metadata to the pooling of data and metadata resources
- Empowering small and medium FHI by making innovative technology available at low cost and low risk
- Significantly increasing the re-use and exchange of datasets among professional communities, union-wide

Pain #1: Advanced Digitization and preservation

According to a study done by the European Audiovisual Observatory (2017), only 15% of the film works in European FHIs surveyed are available digitally, with digitization rates in smaller FHIs averaging at around 6%. [6] The digitization targets set out in the Commission Recommendation of October 27, 2011, on the digitization and online accessibility of cultural material and digital preservation (2011/711/EU) have still not been met. Yet, even when digitization rates incentivized again by the European Union’s Recovery and Resilience Facility deliver a quantitative increase of high-resolution digital assets, advanced digitization as defined by the VHH project and documented in our Main Results [7] goes beyond “more, and bigger files”. It encompasses the whole life cycle of the digital assets and their associated metadata, to ensure they are of sufficient quality for enrichment and re-use, interoperable, and easily accessible.

Pain #2: Enrichment and interoperability

While FHIs across member states increasingly apply common standards as regards formats, resolution and supported containers for their digital heritage objects the subsequent enrichment of the films as well as the structuring of the resulting “rich” metadata is far less clearly developed.

FHIs traditionally face several structural challenges regarding management of metadata:

- Diverse collection materials requiring diverse approaches to describing them (film, stills, ephemera, objects etc.). FHIs however often lack the most basic implementation even of metadata schemas for film materials.
- To catalog film works using the CEN standard for the comprehensive description of cinematographic works (EN15907) FHIs either have to use one commercially available proprietary SAS package or develop their own in-house database or CMS solutions.
- Several MAM (Media Asset Management) or DAM (Digital Assets management) systems exist in the marketplace as free-standing software solutions. Yet none of them are tailored to the needs of FHIs, and to create interfaces with databases, CM systems etc. requires bespoke programming efforts.
- Time-based media like film require dynamic (time-based) cataloging and annotation. Yet, currently no commonly agreed standards or packaged software solutions exist to create this metadata.

- FHIs require rich metadata about their holdings to make them attractive and re-useable: georeferencing, object detection, relation detection. They however lack the computational resources and know-how to create and evaluate this metadata.
- To make metadata interoperable across institutions, member states, language barriers and diverse markets for audiovisual works common Linked Data (LD) resources are needed (ontologies, unique and persistent identifiers, etc.).

It is probably not an exaggeration to state that FHIs are at present immobilized by an abundance of (de facto or assumed) standards, data models and schemas and software solutions available in the marketplace. At the same time, no tailor-made, open standards compliant, transparent, and affordable (or fairly priced) solution exists addressing specifically FHIs as not-for-profit entities.

This apparent lack of engagement with the needs of FHIs also extends to the domain of policy and unfortunately also continues in the Horizon Europe's ECCCH call and even in the Expert Report on which the call is based: neither of them mentions the domain-specific needs of audiovisual materials or FHIs.

Gains

Addressing these structural and technological needs by FHIs and other memory institutions dealing with audiovisual collections would greatly increase the data quality, discoverability and useability of cultural heritage objects and lead to deeper, longer, and more productive engagement.

Pain #3: Access – discovery and re-use

Our first policy brief stated that for FHIs digital access to their film collections, either entirely open to the general public, or limited to eligible users, is the most effective way to make their film heritage collections available to professional communities and the broader public.

However, FHIs face significant hurdles to achieve this goal of broad yet sustainable digital access to collections.

- As stated in a 2012 report by EU Commission Information Society & Media Directorate-General, national as well as union-wide action is required to provide the necessary funding for the digitization process, and to establish models to simplify management of Intellectual Property Rights (IPR) for mass digitization projects aimed at heritage works and in particular out-of-circulation works. **[8]**
- In addition to these issues the challenges, FHIs face in regard to metadata management and interoperability noted above create a flow-on effect in regard to data asset storage, retrieval and play-out. Beyond the opportunities offered through Europeana and European Film Gateway (EFG) to aggregate and make discoverable digitized film heritage materials via their (static) metadata, there is an urgent need to FHIs to access (shared) repositories where both metadata and digital objects are digitally preserved and curated, including the use of sophisticated automated analysis and enrichment tools.
- The cost however for FHIs to individually deploy industry-standard storage and distribution of large amounts of audiovisual data is high. Secure data hosting and scalable video streaming requires both a substantial one-time investment or creates ongoing operational costs. In addition, these services are mostly tailored to the needs of commercial providers (distributors, VOD operators, broadcasters) and current, in-the-market works, and lack technological features necessary for FHIs, including application interfaces for the rich contextual metadata mentioned in the previous section (geodata, time-based annotation, Wikidata or other Linked Data resources, relational linking, etc).

Gains

Our recommendation is for the provision of “shared services” or “NPO cloud services” for FHIs and other heritage and memory institutions with similar needs and pains. Instead of each institution creating its own digital infrastructure, FHIs as well as “hybrid” institutions (e.g., libraries and museums preserving audiovisual collections) should be able to build on existing digital infrastructures and to employ sophisticated digital tools and software services to their own needs.

Such an infrastructure offers FHIs significant possibilities to not only aggregate and exchange metadata but to share assets and their description to the benefit of joint projects (for instance in the field of restoration and cinema exhibition). It will also offer the research sector, including non-university research institutions unprecedented application-level access to metadata and viewing files (access copies) for research and further enrichment.

Such a service offers significant benefit to rights holders both from the public and the private sector. Production bodies—public agencies as well as commercial companies—invest substantial resources into play-out and retrieval services for their product. At the same time and as the aforementioned Commission report notes, structured, mandatory mechanisms for the deposit of European film works in FHIs hasn’t been achieved across the European Union. There is an opportunity now to achieve wins in both policy areas.

Moreover, the development of domain-specific technical solutions and their accessibility to SMEs and small to medium NPOs will reduce the present dependency of institutions on international, and specifically US-American tech companies who dominate the current marketplace for cloud services and DAMs.

II. Existing digital infrastructures for audiovisual cultural heritage

Europeana

Europeana [9] is one of the largest initiatives and infrastructures to search, access and reuse cultural heritage data. The platform provides access to more than 50 Mio objects from 3,700 European cultural heritage institutions connected to Europeana. It is a decentralized service, the data (metadata and content) are hosted at institutional databases and repositories and are aggregated via 40 national, domain and thematic aggregators. Film and other audiovisual heritage is mainly aggregated through EFG – European Film Gateway [10] and EUScreen, aggregator for content from broadcasters and audiovisual archives. However, compared to the number of overall items in Europeana, the percentage of moving image content is around 5% only.

EFG 1914 / I-Media Cities / Victor-E

Several EU funded film heritage projects such as EFG1914 [11], I-Media Cities [12] and Victor-E [13] have successfully proven the need and demand for exploring, enriching, and promoting film and audiovisual collections. For all these projects, EFG is providing an aggregation service and the content that has been digitized in these projects is to a large extent also freely available on the EFG platform.

These initiatives and platforms offer a critical mass of contextualised film and film related collections and/or provide a number of tools to automatically and manually analyze and index time-based media, thus enabling new perspectives for the general public, cultural heritage professionals and researchers alike. Some of these projects’ outcomes have been re-used, revised, and enhanced in the VHH project, thus contributing to the sustainability of their results and the audiovisual heritage sector at large.

However, with each of these projects ending, the platforms and tools are continuously threatened to become obsolete. Due to strictly limited resources beyond the initial project funding and the lack of an overarching, sustained technological infrastructure for hosting of audiovisual content, the existing platforms and contributing institutions cannot expand and provide access to additional collections and tools on the much-needed scale.

European Data Space for Cultural Heritage (DS4CH)

The Commission Recommendation of November 2021 [14] on a Common European Data Space for Cultural Heritage (DS4CH) calls the Member States (MS) to implement national strategies to accelerate digitization and digital preservation efforts, focusing on specific areas: a) heritage at risk, b) most visited endangered sites and monuments, and c) sectors where digitization efforts are low. Annexed to the Recommendation are the digitization targets for each MS with a strong emphasis on 3D items. Europeana, as the operator of the DS4CH, encourages MS and the national aggregators to strengthen their efforts to achieve the 3D targets, unfortunately ignoring that film and audiovisual content is still underrepresented in Europeana because digitization efforts are low in the sector and domain-specific needs of audiovisual media are not met. Moreover, film and other audiovisual content in Europeana is rarely provided by national aggregators, but via the domain aggregators EFG and EUScreen. Consequently, advocating for increased digitization efforts and provision of high-quality moving image content on a member state level will most likely not achieve the envisioned results.

III. Bottom line

None of the existing large digital infrastructures addresses the needs, pains, and gains of FHLs and audiovisual cultural heritage. Those initiatives that attempt to do so, are usually temporary projects of significant, however, still limited scope, whose sustainability remains constantly at stake. Building on the results and the experiences of these projects, the VHH project developed tailored solutions—best practice models, tool kits, and innovative technologies—for film and other audiovisual media, that may be applied to any other cultural heritage objects. Solving the domain-specific needs of FHLs creates benefits for the cultural heritage sector at large:

“If you can fix AV, you can fix anything!”

However, digitization initiatives first need to acknowledge the domain-specific needs of audiovisual cultural heritage. The Commission has created new opportunities for the cultural heritage sector to speed up digital transformation, however, audiovisual media has been forgotten once again. Where else if not in the European Collaborative Cultural Heritage Cloud (ECCCH) should audiovisual cultural heritage finally find its place?

Notes

[1] <https://culture.ec.europa.eu/news/moving-towards-a-new-european-collaborative-cloud-for-cultural-heritage> (21.06.2023)

[2] <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl2-2023-heritage-eccch-01-01> (21.06.2023)

[3] <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl2-2023-heritage-eccch-01-02> (21.06.2023)

[4] European Commission, Directorate-General for Research and Innovation, Brunet, P., De Luca, L., Hyvönen, E. et al., Report on a European collaborative cloud for cultural heritage – Ex – ante impact assessment, Publications Office of the European Union, 2022. <https://data.europa.eu/doi/10.2777/64014>

[5] Deliverable D1.5 EU Commission Policy Brief (M30/31, 2021-06/07)
<https://www.vhh-project.eu/deliverables/d1-5-eu-commission-policy-brief/>

[6] THE ACCESS TO FILM WORKS IN THE COLLECTIONS OF FILM HERITAGE INSTITUTIONS IN THE CONTEXT OF EDUCATION AND RESEARCH. European Audiovisual Observatory, Strasbourg 2017. <https://rm.coe.int/16807835b6>

[7] Deliverable D2.1 *Advanced Digitization Tool Kit* (M12, 2019-12)
<https://www.vhh-project.eu/deliverables/d2-1-advanced-digitization/>

[8] Nicola Mazzanti, Challenges of the Digital Era for Film Heritage Institutions. Luxembourg: Publications Office of the European Union, 2012, p. 18.

[9] <https://www.europeana.eu/en> (21.06.2023)

[10] <https://www.europeanfilmgateway.eu> (21.06.2023)

[11] <https://www.europeanfilmgateway.eu/content/efg1914-project>

[12] <https://www.imediacities.eu> (21.06.2023)

[13] <https://www.victor-e.eu> (21.06.2023)

[14] <https://digital-strategy.ec.europa.eu/en/news/commission-proposes-common-european-data-space-cultural-heritage> (21.06.2023)

POLICY IMPLICATIONS AND RECOMMENDATIONS

The VHH project has the following key recommendation and request:

Ensure that the system design and the governance structure of the European Cultural Heritage Cloud (ECCCH) incorporate specific digital solutions for preserving, curating, enriching, and managing film and other audiovisual media right from the start and in subsequent calls.

This includes but is not limited to:

- Advanced digitization
- Large-scale storage of multiple digital manifestations of a work
- Handling of different versions
- Digital preservation resources
- Protocols and tools for preserving and sharing restoration documentation across the European FHI network
- Compliance with (European) audiovisual metadata standards and vocabularies
- AI-based, automated analysis
- Time-based annotation
- Digital enhancement
- Interlinking with other media and documents (such as photographs, text documents, art works etc.)
- Rich, media specific and generous user interfaces for engagement
- Non-profit distribution for restored and remastered European film heritage works
- Tools facilitating cross-sector exploitation of European audiovisual heritage works

RESEARCH PARAMETERS

Combining state-of-the-art concepts and practices from information sciences, museum pedagogy and digital storytelling, the Visual History of the Holocaust (VHH) project develops a new approach for the engagement with the Holocaust and its visual evidence in an age when digital technologies and the Internet have profoundly transformed our concept of history.

The project focuses on filmic records produced by Allied forces and relating to the discovery of Nazi concentration camps and other atrocity sites. Although these films only capture a certain aspect of the Holocaust, some of their images have become canonical. Due to the scarcity of visual records a few images, often presented out of context, have shaped our collective imaginary of the Holocaust. In the course of the project, these historical films, which currently are dispersed across archival institutions in the United States, the United Kingdom, Russia and other former Soviet Republics, are aggregated, digitized, analyzed and annotated. The film images are linked

dynamically with photographs, text-based documents and Oral History interviews, as well as with images from subsequent visual representations of the Holocaust.

Using existing and emerging technologies, including advanced digitization, automated analysis of images and text, time-based annotation and location-based services, the project provides tools to trace these images and explore how they have been used and reused. It develops strategies to discover and unlock layers of context and meaning inaccessible through traditional linear narrative modes.

The tool kits, best-practice models, applications, and the web platform created in the course of the project address a broad range of users, including both professionals and the interested public: film and media scholars, historians, archivists, information scientists, curators, educators, media producers, artists, visitors of memorial sites, and all engaged citizens. Empowering people to explore the mediality of history and memory by means of digital technologies is the vision of the project.

PROJECT IDENTITY

| | |
|---------------------|--|
| PROJECT NAME | Visual History of the Holocaust: Rethinking Curation in the Digital Age (VHH) |
| COORDINATOR | Dr. Ingo Zechner Ludwig Boltzmann Gesellschaft Ludwig Boltzmann Institute for Digital History Vienna, Austria (ingo.zechner@history.lbg.ac.at) |
| CONSORTIUM | Austrian Film Museum (Österreichisches Filmmuseum) (OFM) Vienna, Austria Centre national de la recherche scientifique (CNRS) Center for Russian, Central European and Caucasian Studies (CERCEC) Paris, France DFF – Deutsches Filminstitut & Filmmuseum e.V. Frankfurt a.M., Germany Ludwig Boltzmann Gesellschaft (LBG) Ludwig Boltzmann Institute for Digital History (LBI) Vienna, Austria Mauthausen Memorial (MM) Mauthausen, Austria max.recall information systems GmbH (MAX) Vienna, Austria Stiftung Bayerische Gedenkstätten (SBG) Dachau Concentration Camp Memorial Site Dachau, Germany Stiftung niedersächsische Gedenkstätten (SNG) Bergen-Belsen Memorial Loheide, Germany The Hebrew University of Jerusalem (HUJI) Jerusalem, Israel TU Wien (TUW) Vienna, Austria University of Bremen (UBremen) Bremen, Germany University of Giessen (JLU) Giessen, Germany |

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WEBSITE

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FURTHER READING

Deliverable D1.5 EU Commission Policy Brief (M30/31, 2021-06/07)

<https://www.vhh-project.eu/deliverables/d1-5-eu-commission-policy-brief/>

Deliverable D2.1 *Advanced Digitization Tool Kit* (M12, 2019-12)

<https://www.vhh-project.eu/deliverables/d2-1-advanced-digitization/>



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